Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION XI
New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 18-20. September 2023.

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INV8
Evaluation of cobalt supported chitosan-derived carbon-smectite catalysts in Oxone® induced dye degradation

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Wastewaters polluted with high concentration of dyes are produced by various industries. Therefore, it is important to perform treatment of the dye-contaminated waters before their discharge into recipients in order to protect the environment. Sulfate radical-based advanced oxidation processes that involve use ofactivated Oxone® can be used for degradation of dyes. In this work,nanocomposite catalysts constituted ofCo supported on smectite with chitosan-derived carbon were used for activation of Oxone. Catalysts were synthetizedusingan impregnation-carbonization procedure and denoted as Co/cCh-S-*T* (*T* stands for applied carbonization temperature). The carbonization was performed in the temperature range from 400°C to 700°C in the flow of N_2 providing inert atmosphere. The synthesized catalysts were fully characterized using XRPD, XPS, FTIR, HR-TEM, and low-temperature N_2-physisorption analysis, and evaluated in the Oxone® induced oxidative degradation of food dye tartrazine. The best performing catalyst was investigated in detail regarding catalytic degradation of tartrazine with respect to degradation time and different experimental parameters (dye concentration, Oxone® concentration, temperature, and initial pH of the reaction solution). The kinetic and thermodynamic parameters were calculated from the experimental results.The selected catalyst showed excellent performance in the Oxone® initiated tartrazine degradationat low temperatures (even at 25°C) and in the wide range of pH values.

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INV9
Electrical and humidity sensing properties ofLNTO ceramics with ZnO as functional additive

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Among various materials used as sensing elements of the humidity sensors, the nanostructured ceramics based on various metal oxides offer several advantages such as high chemical, mechanical and thermal stability, as well as their porous nature that enables the rapid response dynamics and broad range of operation. In this paper, we report on electrical and humidity sensing properties of lithium–niobium–titanium–oxide (LNTO) ceramics with ZnO as functional additive, which have been synthesized by solid–state reaction method.